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EXAMINER

NGUYEN, THINH T

ART UNIT PAPER NUMBER

2818

DATE MAILED: 04/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/727,760

Applicant(s)

MALI ET AL.

Examiner

Thinh T. Nguyen

Art Unit

2818

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-9 is/are rejected.
- 7) ☒ Claim(s) 10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED OFFICE ACTION

1. Applicant election of claim 1-2,4-10 for prosecution of the present application without traverse in the communication with the office on 3/14/2005 is acknowledged.

Drawings

2. Fig. 2,3, and 4 are not designated by a legend such as “ prior art “. The legend is necessary in order to clarify what applicant 's invention is (see MPEP paragraph 608.02).
Correction is required.

Specification

3. The specification is objected to for failing to enable the invention and make it non-compliant with 35 U.S.C. 112 first paragraph.

Applicant discloses in paragraph [0012] that the n-type transistor is fabricated on an n-type substrate and the p-type transistor is fabricated on a p type substrate. This disclosure is different from a conventional well known structure as shown in fig 4 in US patent 5,843,816 by Liaw that shows that N-type is fabricate on P-well (or P substrate) and P-type is fabricate on N-well (or N-substrate); also see fig 4-2 (a) page 137 From Silicon Processing for the VLSI Era (volume 3) by Stanley Wolf published by Lattice press (1995) attached to the PTO-892 of this Office Action.

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Can the Applicants give evidence of prior art that have a P-type transistor (a MOSFET transistor that the source and drain are P-type) that have a P-channel built on a P substrate or a N-type transistor (a MOSFET transistor that the source and drain are N-type) that have a N-channel built on a N substrate with a n-channel since the Examiner is not aware of those structure.

Correction or clarification is required.

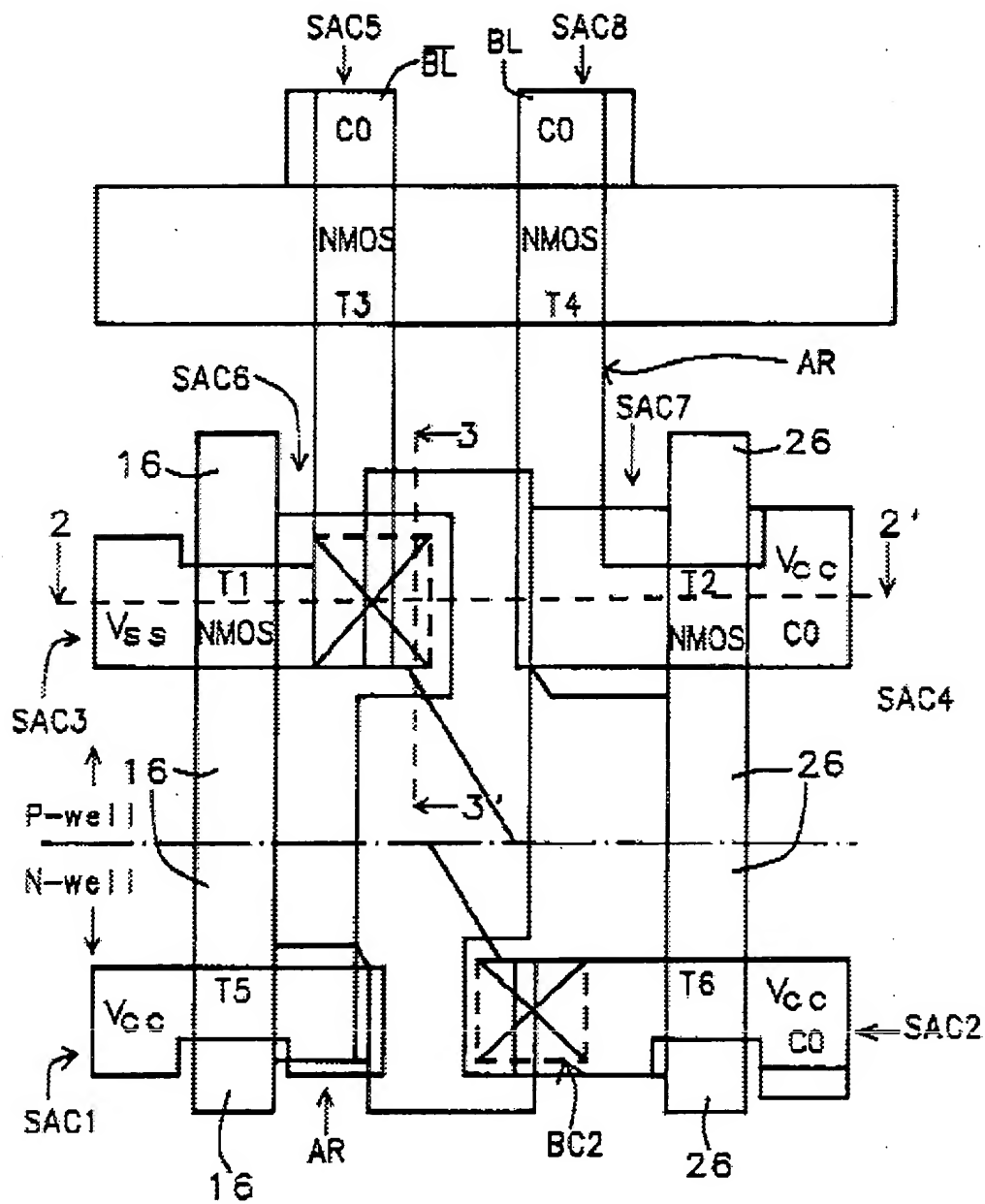


FIG. 4

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4. The specification has been checked to the extent necessary to determine the presence of all possible minor errors. However, the applicant cooperation is requested in correcting any errors of which the applicant may become aware in the specification.

Claims Objections

5. Claims 6,7,8 are all objected for being not-enabling and make them non-compliant with 35 U.S.C. 112 first paragraph. There are not enough disclosures in the specification or the drawings for the claimed p-transistor on a p substrate or a n-transistor on a n-substrate so that a person skilled in the art can make use of these inventions.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102(b/e) that form the basis for the rejections under this section made in this office action.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1,4,5 are rejected under 35 U.S.C. 102(e) as being anticipated by Kumagai et al.
(US patent 6,657,243)

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REGARDING CLAIM 1,4

Kumagai (the abstract , fig 17, fig 19) discloses a core cell (a SRAM cell) fabricated upon a substrate of three columns of substrate material, the three columns of substrate material comprising a first n-type column, a first p-type column and a second n-type column, the p-type column being positioned between the first and second n-type columns and a random access memory comprised of at least a plurality of core cells, a core cell, comprising: first n-type substrate; first p-type substrate; and second n-type substrate, the first and second n-type substrates being positioned on opposite sides of the first p-type substrate.

REGARDING CLAIM 5

Kumagai disclose (in fig 19) a core cell wherein the substrates have rectangular shapes.

FIG. 17

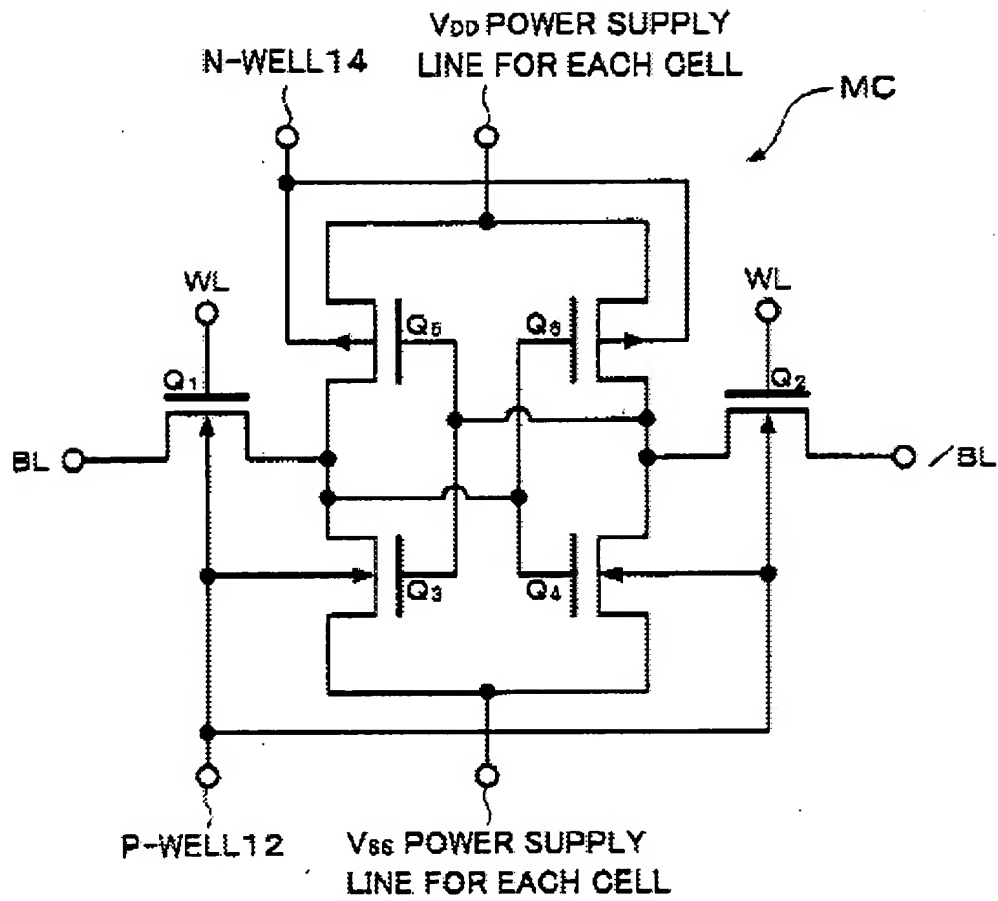
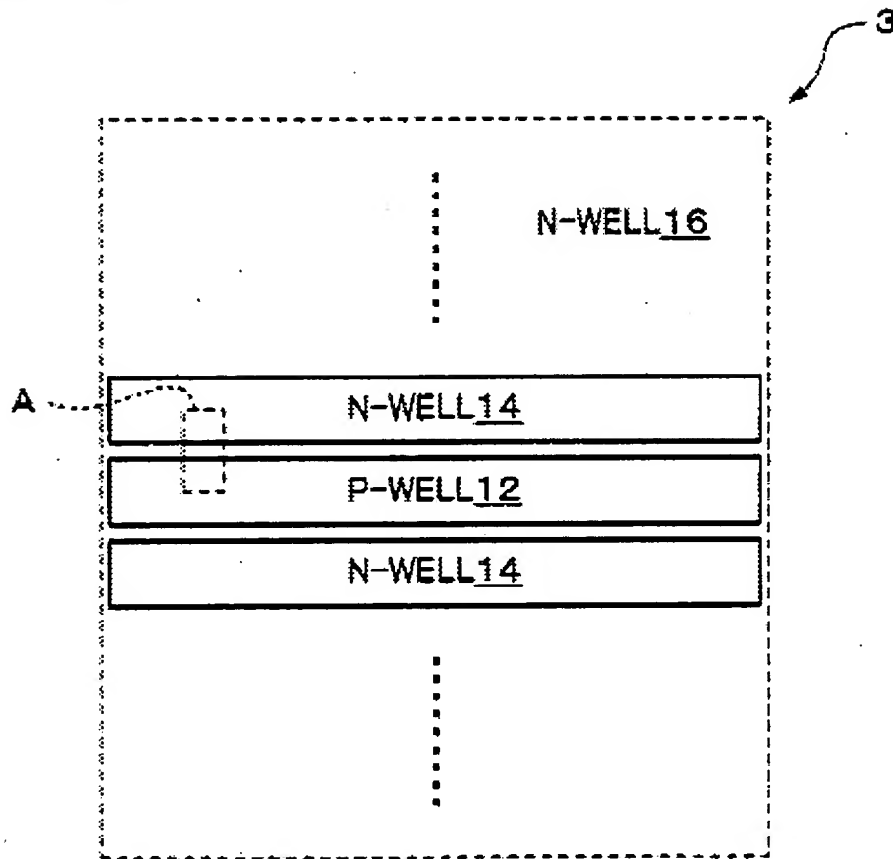


FIG. 19



Claim Rejections - 35 USC § 103

8. The following is a quotation of U.S.C. 103(a) which form the basis for all obviousness rejections set forth in this office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 6,7,8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang (US patent 6,621,125) in view of further remark.

To expedite prosecution of the application the examiner assume that the Applicant will amend claim 6,7,8 to make them in compliant with 35 U.S.C. 112 first paragraph and overcome the objection by the examiner.

REGARDING CLAIM 6,7

Wang disclose a first and second n-type (layer 52 and 56 in fig 3C with a p type (layer 54) in middle (fig 3C) and his structure are intended for use in SRAM fabrication.(column 1 line 20)

REGARDING CLAIM 8

The couplings of the transistors to make a core cells is old and well known in the art as evidenced by the disclosure in fig 1 by Liaw et al. (US patent 5,843,816).

A person skilled in the art at the time the invention was made would have been able to come up with the invention of claim 8 using the disclosure by Wang and his ordinary design skill Without any special teaching for the purpose of improving the semiconductor device.

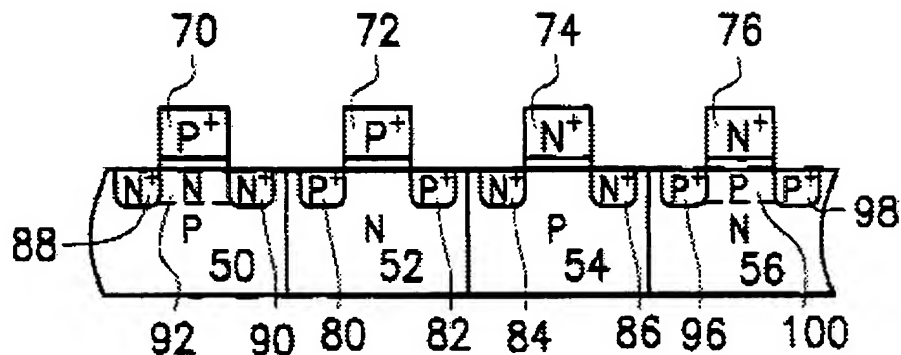


FIG. 3C

10. Claims 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wang (US patent 6,621,125) in view of Applicant Admitted Prior Art (fig 4).

REGARDING CLAIM 9

Wang discloses all the invention except for a pairs of bits line, The AAPA (fig 2, fig 3) however, disclose a core cell with pairs of bit line.

It would have been obvious for one of ordinary skill in the art at the time the invention was made to combine the teachings by the AAPA with the teachings by Wang and come up with the invention of claim 9 for the purpose of improving the AAPA semiconductor device as suggested by Wang in his abstract.

ALLOWABLE SUBJECT MATTER

11. Claims 10 is objected as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claim.

Claim 10 is considered allowable since prior arts of record fail to teach the structure as recited in claim 10.

12. When responding to the office action, Applicants are advised to provide the examiner with the line numbers and the page numbers in the application and/or references cited to assist the examiner to locate the appropriate paragraphs.

13. A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to be abandoned (see M.P.E.P. 710.02(b)).

CONCLUSION

14. The prior arts made of record and not relied upon are considered pertinent to applicant disclosure: Kim (US patent 6,118,158) disclose a static random access memory having a memory cell array region in which the unit cell is arranged in a matrix.

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15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thinh T Nguyen whose telephone number is 571-272-1790.

The examiner can normally be reached on Monday-Friday 9:00am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached at 571-272-1787.

The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Thinh T. Nguyen



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David Nelms
Supervisory Patent Examiner
Technology Center 2800